time is indispensable to meet the demands of a higher class of farming than has been hitherto generally adopted.

The advantages of the proposed plan are, that the present sewers are maintained, that the sewage matter is saved, that the water of the Thames is not polluted, and that it admits of the experiment being made on a small scale and at small expense. No infeasible theory is proposed; no spot made to suffer, that London may escape; while it is applicable to every place and under every circumstance—to single houses, to villages, towns, cities, even to the great metropolis itself.

It may be objected that such works are on a scale unheard of elsewhere: but this is no refutation of their practicability. This is the age of unheard of plans, of daring schemes, and the realization of wild conceptions. Who, a few years since, would have listened patiently to the details of a scheme for throwing cast-iron tubes of vast capacity across the Menai Straits! When philosophers looked doubtful, and wise men shook their heads, and sneerers scoffed, who could have conceived that in so few years the wide Atlantic would be almost bridged with magnificent steamers, bearing rich freights and crowds of passengers from shore to shore in the space of a few days, and with a regularity that barely admits of the tempest and whirlwind being taken into the calculation? To "put a girdle round the earth in twenty minutes" needs now no supernatural agency: a child may now in shorter space send the very lightning on his errand, bearing winged words beneath the vasty deep, through mountains and across boundless wastes!

In these days it should be our ambition to surpass what our forefathers have done, their limited experience and inferior mechanical knowledge not admitting of the same opportunities offered to us. Few of our public works, however, with the exception of our railways, equal in point of execution, of durability, and of public utility, the *cloaca* of old Rome, the subterranean reservoirs of Constantinople, and the aqueducts built by the Moors in Spain. Our railways are indeed glorious exceptions, and while they constitute so conspicuous an element of our wealth and strength, they suggest the thought that their value and their success are to be traced to the fact that they are for "the million," that every individual member of the commonwealth finds his advantage in them without reference to locality or class, or caste, or circumstances. These are the works in which the whole people are interested, vitally interested, affecting, as they do, the very air they breathe, the water for their daily use, and the light that adds so much to their safety and comfort.

TYRONE POWER.

THE BUILDING IN HYDE-PARK.

At the anniversary meeting of the Derby Mechanics' Institution, on the 9th inst., the Right Hon. Edward Strutt in the chair, Mr. Paxton* gave a history of his design.* He commenced by saying, that, gigantic as the building was, it was conceived and framed by him in a small space of time. He need not, however, remind them that it was not done without a great deal of forethought, aided by the experience he had in constructing other great buildings. When the six eminent architects and engineers were selected as a committee to choose a design, he had no intention of offering one, for he took for granted that something worthy of the occasion and of the nation would be selected by them. When the time approached for the production of plans, there was a discussion in the newspapers as to the design best adapted, and he must say that the first sketch he saw in a number of THE BUILDER did not inspire him with any very exalted notions, or raise any very splendid expectations of the result. It was not until one morning when he was present with his friend Mr. Ellis at an early sitting in the House of Commons that the idea of sending in a design occurred to him. A conversation took place between them with reference to the construction of the new House of Commons, in the course of which he (Mr. Paxton) observed, that he was afraid they would also commit a blunder in the building for the Industrial Exhibition; adding, that he had a notion in his head, and that, if Mr. Ellis would accompany him to the Board of Trade, he would ascertain whether it was too late to send in a design. He asked the executive committee whether they were so far committed to the plans as to be precluded from receiving another: the reply was, "Certainly not, the specifications will be out in a fortnight, but there is no reason why a clause should not be introduced allowing of the reception of another design."* He (Mr. P.) said, "Well, if you will introduce such a clause, I will go home, and in nine days hence I will bring you my plans all complete." No doubt, the executive thought him a conceited fellow, and that what he said was nearer akin to romance than to common sense. Well, this was on Friday, the 11th of June. From London he went to the Menai Straits, to see the third tube of the Britannia bridge placed, and on his return to Derby he had to attend to some business at the board room, during which, however, his whole mind was devoted to his project; and whilst the business proceeded he sketched his design on a large sheet of blotting-paper. He was sorry he had not the original with him, but the fact was, Mrs. Paxton had taken possession of it, and if they were at all anxious to see it, the only possible way of gratifying their desire was by sending for her to the meeting. Well, having sketched his design on blotting paper, he sat up all night until he had worked it out to his own satisfaction; and by the aid of his friend Mr. Barlow on the 15th, he was enabled to complete the whole of the plans by the Saturday following, on which day he left Rowsley for London. On arriving at the Derby station he met Mr. Robert Stephenson, a member of the building committee, who was also on his way to the metropolis. Mr. Stephenson minutely examined the plans, and became thoroughly engrossed with them, until at length he exclaimed that the design was just the thing, and he only wished it had been submitted to the committee in time. Mr. Stephenson, however, laid the plans before the committee, and at first the idea was rather pooh-poohed; but his plans gradually grew in favour, and by publishing the design in the *Illustrated News*, and showing the advantage of such an erection over one composed of 15 millions of bricks and other materials, which would have to be removed at a great loss, the committee did in the end reject the abortion of a child of their own, and unanimously recommend his bantling. He was bound to say that he had been treated by the committee with great fairness. Mr. Brunel, the author of the great dome he believed, was at first so wedded to his own plan, that he would hardly look at his. Mr. Brunel was, however, a man of fairness, and listened with every attention to all that could be urged in favour of his (Mr. Paxton's) plans. As an instance, some dimensions being wanted, Mr. Brunel called at Devonshire House and gave him the measurement of the trees, which he had taken early that morning; adding, "Although I mean to try to win with my own plan, I will give you all the information I can." After giving the particulars of the building, with which our readers are acquainted, the speaker adverted to the uses to which such sort of buildings may be applied. He said the exceeding cheapness of iron and glass will give an impetus to the erection of similar buildings, though perhaps on a smaller scale; for there is hardly any purposes of ordinary covering to which the same plan may not be adapted with advantage. He had already been consulted by various parties—by Yorkshire manufacturers as well as other persons—with reference to the application of the principle in covering large spaces. Mr. Batty, the equestrian, of London, wished him to design him a circus to be erected near the park during the exhibition, and a friend had suggested what to him appeared an excellent idea, namely, the covering over of Shakspeare's birthplace at Stratford, to protect it from decay.

* Reported in full in *Daily News*.

ACOUSTICS.—In connection with the interesting article on acoustics, in No. 396, allow me to refer your correspondent to a passage in the life of Sir Christopher Wren (fol. London, 1750, p. 320). In speaking of the proper dimensions of a church, where the greatest number of persons might see and hear distinctly, Sir Christopher states, "that a moderate voice may be heard 60 feet before the preacher, 30 feet on each side, and 20 feet behind the pulpit." The proportions, therefore, which he recommends are 60 feet wide and 90 feet long, with porch and chancel. On this plan St. James's Church, Westminster, was erected.—A.

* The clause introduced did not, in truth, provide for the reception of a fresh design. We never thank of this competition, &c. without a blush.—ED.

THE "EUSTON PAVEMENT."

WHAT is advertised in our columns as the "Euston Pavement," originated in an experiment in road making, tried at Birmingham in 1838, and a repetition of it at the departure side of the Euston station of the London and North-Western Railway about seven years ago. In both cases it is said to have been very successful.

The manner in which this paving is laid may be simply described. The ground is first removed to the depth of 16 inches below the intended level of the pavement, the foundation being shaped to the convexity of the intended surface of the road: a layer of strong gravel, 4 inches thick, is then spread over the surface, and compressed, by being rammed equally throughout; after which, another layer of 4 inches of gravel, mixed with a small quantity of chalk, or hoggin, is laid on, for the purpose of giving elasticity to the bed, the ramming being continued as before. This is followed by the last layer, also 4 inches thick, of the same material, but of a finer quality, when the whole mass is compressed by the rammer into the smallest possible space. Thus the surface of the foundation is perfect, both in shape and solidity, in all its parts, and is ready to receive the pavement. The stones used are of Mount Sorrel granite, from 3 to 4 inches deep, 3 inches wide, and averaging 4 inches in length, neatly dressed and squared. These stones are laid in a bed of fine sand, 1 inch in depth, spread over the surface, and are carefully and closely jointed in the laying, so as not to allow any single stone to rock in its bed. The rammer is then applied over the whole, each stone receiving its blow in rotation, and this is repeated again and again, until no further impression can possibly be made upon it.

As to cost, the patentee says,—"The usual practice in the old system has been for the contractor, in repaving a street, merely to lift the existing surface and to substitute new stone in place of the old. The minimum cost of this replacing is fifteen shillings per superficial yard, to which must be added three shillings per yard, for the value of the old stone claimed by the contractor, and which will make the clear cost of the large pavement eighteen shillings per superficial yard. The maximum cost of the Euston pavement is twelve shillings per superficial yard, including the foundation; and after deducting three shillings per yard, the value of the old stone, not claimed by the contractor, the net cost will be nine shillings per superficial square yard, or about half the minimum cost of the large pavement."

This system was brought under the notice of the Institution of Civil Engineers in February last, when several strong witnesses spoke in its favour.

EXPRESSION IN BUILDINGS DEPENDANT ON WINDOWS.

I HAVE read with great interest the valuable remarks of S. H. on the treatment of windows in modern English buildings, showing how much the beauty of every English building, of whatever style, depends on its windows. A few observations will tend to show the truth of this principle.

Besides the general shape and proportion of a building, there is necessary, in order to make it really beautiful, expression; or, as we might almost say, life. Now I conceive this expression is obtained chiefly, if not altogether, by the contrasts of light and shade; broad lights, changing with the changes of sunshine and cloud; deep, fixed shades.

Under a bright, burning sun, high above the head, and a blue, cloudless sky, this effect is sufficiently obtained by a row of pillars a few feet in front of a plain, unbroken wall. The shade of the narrow line of roof above would, in that climate, produce a deep, fixed shade, while the sunlight, resting on the rounded pillars in front, would produce all the contrast desired to please the eye, and give expression to the whole. The effect here is produced by an actual shadow.

But in our northern climate, we cannot depend upon shadows for any striking effect. In the first place, there are not many days in

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